

## ABSTRACT

A plate heat exchanger includes a plurality of plates sandwiched between a pair of end plates. Each of the plurality of plates has two passageways defined therein that are not in fluid communication with each other. Alternatively, some of the plurality of plates have a passageway, while some of the remaining plates have another passageway. Two fluids flow through the two passageways in a countercurrent fashion. Because the countercurrent flows are superior in heat transfer efficiency, it is possible to enhance the performance and reduce the size of the plate heat exchangers.

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